

Applicant : Jian Bai, Steven M. Fischer and J. Michael Flanagan  
Appl. No. : 10/806,808  
Examiner : Paul M. Gurzo  
Docket No. : 10980322-6 (12089.4005)



## IN THE CLAIMS

Please amend claims 34, 38, 40-44, 46, 48, 50, and 51. Please add new claim 49.

1-33. (Cancelled)

34. (Currently Amended) A method for preparing a sample containing at least ~~one~~ an analyte for mass analysis comprising:

- (a) providing the sample containing a matrix ~~containing said sample to create a matrix/sample mixture~~;
- (b) maintaining the ~~matrix containing said sample~~ in a condition of ambient pressure greater than 100 mTorr while directing laser energy onto the matrix to desorb and ionize the ~~at least one~~ analyte, and
- (c) directing the ionized analyte from the ambient pressure condition into a mass analysis device.

35. (Previously Presented) The method of claim 34 wherein the desorption and ionization occurs at a temperature between about -196 to 500°C.

36. (Previously Presented) The method of claim 34 wherein the analyte is an organic compound selected from small molecules having a molecular weight of less than about 1000 daltons or synthetic organic polymers having a molecular weight of up to 1,000,000 daltons, or fragments thereof.

37. (Previously Presented) The method of claim 34 wherein the at least one analyte is a biologically related or biologically derived material selected from the group consisting of deoxyribonucleic acid (DNA), ribonucleic acid (RNA), peptide, protein, lipid, carbohydrate, an organism, a plasmid, bacteria, fungi, algae, viral particles, and cells or fragments thereof.

38. (Currently Amended) The method of claim 34 wherein ~~a wavelength of the laser energy is selected from the group consisting of a laser operated at ultraviolet (UV), visible (VIS) or and (IR) infrared wavelengths, or combinations thereof.~~

39. (Previously Presented) The method of claim 34 wherein the ambient pressure is about atmospheric pressure.

40. (Currently Amended) A method for analyzing a sample comprising:

- (a) providing the sample containing an analyte;

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- (b) maintaining said sample in a condition of ambient pressure greater than 100 mTorr;
- (c) directing laser energy onto the sample to desorb and ionize the analyte to create ionized analyte;
- (d) directing the ionized analyte into a mass analysis device, and
- (e) ~~mass-analyzing~~ the ionized analyte received by the mass analysis device.

41. (Currently Amended) The method of claim 40 wherein the mass analysis device is selected from the group consisting of time-of-flight, ion trap, quadrupole, Fourier transform ion cyclotron resonance, magnetic sector, and electric sector, devices, and combinations thereof.

42. (Currently Amended) The method of claim 40 further comprising repeating the providing step of ~~providing to~~ produce multiple samples and positioned for sequential analysis in an organized or random manner.

43. (Currently Amended) The method of claim 42 wherein the multiple samples are contained in a multiple sample holder which is mobilestationary and the laser is mobile and is positioned for sequential analysis to ~~sequentially analyze the stationary multiple samples~~ in an organized or random manner.

44. (Currently Amended) The method of claim 40 wherein the laser energy is ~~operated~~ at ultraviolet (UV), visible (VIS), or infrared (IR) wavelengths, or combinations thereof.

45. (Previously Presented) The method of claim 40 wherein the analyte is desorbed and ionized in air, helium, nitrogen, argon, oxygen, or carbon dioxide, or combinations thereof.

46. (Currently Amended) The method of claim 40 wherein the sample comprises and ~~matrix are in~~ a moving liquid.

47. (Previously Presented) The method of claim 40 wherein the sample comprises a static liquid.

48. (Currently Amended) The method of claim 40 wherein the sample is desorbed and ionized at about or near-ambient pressure, ~~and the sam40 wherein ionized analyte comprises positive ions.~~

49. (New) The method of claim 40 wherein the ionized analyte comprises positive ions.

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50. (Currently Amended) The method of claim 40 wherein the ionized analyte comprises negative ions.

51. (Currently Amended) A method for the mass spectrometric analysis of ions produced by matrix-assisted laser desorption and ionization of an ~~at least one~~ analyte in a sample, wherein the improvement comprises conducting the matrix-assisted desorption and ionization at an ambient pressure greater than 100 mTorr.